



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,198	12/05/2001	Yoichiro Kurita	01488/2000-370980	2453

7590

04/14/2003

McGinn & Gibb, PLLC
Suite 200
8321 Old Courthouse Road
Vienna, VA 22182-3817

EXAMINER

LEE, JINHEE J

ART UNIT

PAPER NUMBER

2831

DATE MAILED: 04/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/002,198

Applicant(s)

KURITA, YOICHIRO

Examiner

Jinhee J Lee

Art Unit

2831

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) 24-45 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 24-45 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 4.

Priority

2. Acknowledgment is made of applicant's claim for priority under 35 U.S.C. 119(a)-(d) based upon an application filed in Japan on 12/6/00.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the internal electrode of claim 1; external thrust force of claims 1-3; support member out of contact with external electrode of claim 3; core of claims 5-7; solder coat of claims 5-7; insulator of claim 7; conductor body of claims 9-10; wire of claims 12-13; insulator coat of claim 13; conductor bump of claim 14; insulator body of claims 15-16 and 20; through-hole of claims 15 and 20; resin body of claims 17-18; insulator plate of claim 21; and electronic instrument of claim 23 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Art Unit: 2831

4. The drawings are objected to because Figures 3, 4, 5A and 5B lacks the proper cross hatching which indicates the type of materials which may be in an invention.

Specifically, the cross-hatching to indicate the conductor and insulation materials is incorrect. The applicant should refer to MPEP Section 608.02 for the proper cross hatching of materials. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

5. Applicant is required to submit a proposed drawing correction in reply to this Office action. However, formal correction of the noted defect may be deferred until after the examiner has considered the proposed drawing correction. Failure to timely submit the proposed drawing correction will result in the abandonment of the application.

Specification

6. The disclosure is objected to because of the following informalities:

At page 4 line 11, "ununiformity" is misspelled. Examiner suggests "uniformity" instead.

At page 6 line 17, "terminal of Fig. 1" is confusing. Examiner suggests, "terminal of Fig. 3" instead to clarify.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 4-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 line 2, claim 5 line 2, claim 6 line 2 and claim 7 line 2 recites the limitation "said external terminal". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1, 2, 4, 5, 8-11, 15-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Houtz (US006358068).

Re claim 1, Houtz discloses an electric terminal (including 100 for example) for an electronic device comprising: an external electrode (solder ball 100 for example); a lead member (98, lower section of contact) disposed on an internal electrode (92, medial section of contact) of the electronic device (contact, including 66 for example), at least a portion of said lead member being a conductor electrically connecting said external electrode and the internal electrode; and a support member (base wall 14 for example) disposed on the electronic device in the vicinity of said lead member for supporting said external electrode at least upon application of an external thrust force which deforms said lead member (see figures 1, 2 and 13).

Re claim 2, Houtz discloses an electric terminal, wherein said support member is in contact with said external electrode upon application of no external thrust force (see figure 5).

Re claim 4 (as best understood), Houtz discloses an electric terminal, wherein said external electrode includes a solder ball (see figure 13).

Re claim 5, Houtz discloses an electric terminal, wherein said external electrode includes a core (unnumbered center part of 100), at least a portion of which is covered by a solder coat (see figure 13).

Re claim 8, Houtz discloses an electric terminal, wherein said lead member is made of a conductor (see figure 13).

Re claim 9, Houtz discloses an electric terminal, wherein said lead member includes a conductor body (66 for example) (see figure 13). Houtz does not explicitly disclose that the conductor body is formed by plating. However the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

Re claim 10, Houtz discloses an electric terminal, wherein said lead member includes a conductor body (66 for example) formed separately from and connected to the electronic device (see figure 13).

Re claim 11, Houtz discloses an electric terminal with lead member (see figure 13). Houtz does not explicitly disclose that the lead member is formed by etching a metallic film. However the method of forming a device is not germane to the issue of

patentability of the device itself. Therefore, this limitation has not been given patentable weight.

Re claim 15, Houtz discloses an electric terminal, wherein said lead member includes an insulator body (on 534 for example) having a through hole (unnumbered) filled with a plating conductor (see figure 33 and column 10 line 53-54).

Re claim 16, Houtz discloses an electric terminal, wherein said support member includes an insulator body (see figure 2). Houtz does not explicitly disclose that the insulator body is patterned by a photolithographic technique. However the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

Re claim 17, Houtz discloses an electric terminal, wherein said support member includes resin body (see figure 2). Houtz does not explicitly disclose that the resin body is formed by a transfer molding technique. However the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

Re claim 18, Houtz discloses an electric terminal, wherein said support member includes resin body (see figure 2). Houtz does not explicitly disclose that the resin body was etched to form the supporting member. However the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

Re claim 19, Houtz discloses an electric terminal, wherein said support member includes resin body (see figure 2). Houtz does not explicitly disclose that the resin body

Art Unit: 2831

was etched using at least one of laser etching, wet etching and dry etching. However the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

Re claim 20, Houtz discloses an electric terminal, wherein said supporting member includes an insulator body (base wall 14 for example) having a through hole (unnumbered near the recess) through which said lead member passes (see figures 2 and 13).

Re claim 21, Houtz discloses an electric terminal with support member. Houtz does not explicitly disclose that patterning an insulator plate by etching was used to form the supporting member. However the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

Re claim 22, Houtz discloses an electric terminal with support member. Houtz does not explicitly disclose that the etching is either laser etching, wet etching and dry etching. However the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

Re claim 23, Houtz discloses an electronic instrument comprising the electric terminal as defined in claim 1 above (see column 1, line 29).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2831

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 3, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Houtz in view of Beroz et al. (US006329605).

Re claim 3, Houtz substantially discloses an electric terminal as set forth in claim 1 above. Houtz does not explicitly disclose that said support member is out of contact with said external electrode upon application of no external thrust force. However, Beroz et al. teaches of an electric terminal with a support member (406 for example) that is out of contact with an external electrode (426 for example) upon application of no external thrust force (see figure 6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use external electrode that is out of contact with the support member of Beroz et al. on the electric terminal of Houtz in order to provide electrical isolation.

Re claim 6, Houtz substantially discloses an electric terminal as set forth in claim 1 above. Houtz does not explicitly disclose that said external terminal includes a central core made of at least one conductor material and covered by a solder coat, said conductor material having a melting point higher than a melting point of said solder coat. However, Beroz et al. teaches of a central core made of at least one conductor material and covered by a solder coat, said conductor material having a melting point higher than a melting point of said solder coat (see column 2 lines 18-24). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a central core made of at least one conductor material and covered by a solder coat,

Art Unit: 2831

said conductor material having a melting point higher than a melting point of said solder coat as taught by Beroz et al. on the electric terminal of Houtz in order to provide none melting core.

Re claim 7, Houtz substantially discloses an electric terminal as set forth in claim 1 above. Houtz does not explicitly disclose that said external terminal includes a central core made of at least one conductor material and covered by a solder coat, said central core receiving therein an insulator. However, Beroz et al. teaches of a central core made of at least one conductor material and covered by a solder coat, said central core receiving therein an insulator (void for example) (see column 2 lines 18-24). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a central core made of at least one conductor material and covered by a solder coat, said central core receiving therein an insulator as taught by Beroz et al. on the electric terminal of Houtz in order to engage protruding solder.

13. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over x.

Re claim 12, Houtz substantially discloses an electric terminal as set forth in claim 1 above. Houtz does not explicitly disclose that said lead member includes a wire. However, Applicant's prior art figure 1D teaches of a lead member that includes a wire. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a lead member that includes a wire as taught by Applicant's prior art figure 1D on the electric terminal of Houtz in order to achieve a higher density of the external terminals.

Re claim 13, Houtz substantially discloses an electric terminal as set forth in claim 1 above. Houtz does not explicitly disclose that said lead member includes a wire covered by an insulator coat. However, Applicant's prior art figure 1D teaches of a lead member that includes a wire covered by an insulator coat. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a lead member that includes a wire covered by an insulator coat as taught by Applicant's prior art figure 1D on the electric terminal of Houtz in order to achieve a sufficient mechanical strength and resilience.

Re claim 14, Houtz substantially discloses an electric terminal as set forth in claim 1 above. Houtz does not explicitly disclose that said lead member includes a conductor bump at least a portion of which is made of solder. However, Applicant's prior art figure 1D teaches of a lead member that includes a conductor bump at least a portion of which is made of solder. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a lead member that includes a conductor bump as taught by Applicant's prior art figure 1D on the electric terminal of Houtz in order to achieve a higher density of the external terminals.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jinhee Lee whose telephone number is 703-306-0154. The examiner can normally be reached on M, T, Th, F at 6:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 703-308-3682. The fax phone numbers

Art Unit: 2831

for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

A handwritten signature in black ink, appearing to read "Anthony Dinkins". The signature is fluid and cursive, with a large loop at the end.

ANTHONY DINKINS
PRIMARY EXAMINER

jil
April 1, 2003